IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant:	Maarten Menzo Wentink
Title:	TECHNIQUE FOR OPTIMIZING BACKOFF FOR A SHARED RESOURCE
Appl. No.:	10/689,018
Filing Date:	10/20/2003
Examiner:	Nicholas R. Taylor
Art Unit:	2441
Confirmation Number:	4108

BRIEF ON APPEAL

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Sir:

This Appeal Brief is being filed in response to a Notice of Panel Decision from Pre-Appeal Brief review mailed November 24, 2010, providing a one-month period for reply. As a result, this Appeal Brief is being filed with a one-month extension fee. The Notice of Panel Decision from Pre-Appeal Brief Review rejected claims 1-14, 17, 18, 21-23, and 25-32 of the above-references patent application ("Application"). This Appeal Brief is being filed together with a credit card payment form in the amount of $670.00, $540.00 of which covers the 37 C.F.R. 41.20(b)(2) appeal fee, and $130.00 of which covers the one-month extension fee. If this

fee is deemed to be insufficient, authorization is hereby given to charge any deficiency (or credit any balance) to the undersigned deposit account 19-0741.

Appellant respectfully requests reconsideration of the Application.

REAL PARTY IN INTEREST

The real part in interest is Xocyst Transfer AG L.L.C., the assignee of record, having a place of business at 2711 Centerville Road Suite 400, Wilmington, Delaware 19808 U.S.A. The assignment to Xocyst Transfer AG L.L.C.was recorded in the records of the United States Patent and Trademark Office at Reel/Frame 022043/0591 on January 2, 2009.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that will directly affect, be directly affected by, or have a bearing on the present appeal, that are known to Appellants or Appellant's patent representative.

STATUS OF CLAIMS

Claims 15, 16, 19, 20, and 24 were cancelled in Appellant's Amendment and Reply filed on January 23, 2009 with a Request for Continued Examination.

The present appeal is directed to claims 1-14, 17, 18, 21-23, and 25-32, all of which stand rejected pursuant to a Final Office Action dated August 27, 2010, and a Notice of Panel Decision from Pre-Appeal Brief review mailed November 24, 2010. Claims 1-14, 17, 18, 21-23, and 25-32 are being appealed. The claims with the appropriate status references are shown in the attached Claims Appendix.

STATUS OF AMENDMENTS

A Final Office Action dated August 27, 2010 was received by Appellants. A Notice of Appeal with a Pre-Appeal Brief Request for Review was electronically filed with the United States Patent and Trademark Office on October 19, 2010. A Notice of Panel Decision from Pre-Appeal Brief review was mailed November 24, 2010, in which the rejection of claims 1-14, 17, 18, 21-23, and 25-32 was maintained. Thus, no amendments have been made in the present application subsequent to receipt of the Final Office Action dated August 27, 2010.

SUMMARY OF CLAIMED SUBJECT MATTER

In accordance with a first embodiment, as described in independent claim 1 of the present application, a method for accessing a shared resource is disclosed. (*See, e.g.,* Figures 2-4; paragraphs [0010], and [0029]-[0033]; page 2, lines 27-31, and page 4, line 29-page 5, line 17.) The method comprises a first station that shares a resource with a plurality of other stations. (*See, e.g.,* Figures 2-4; paragraphs [0014], [0023], and [0030]; page 3, lines 10-11, page 4, lines 7-12, and page 5, lines 1-3.) The first station determines a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource. (*See, e.g.,* Figure 5; paragraphs [0011], [0031]-[0033]and [0045]; page 2, line 32-page 3, line 3, page 5, lines 4-17 and page 7, lines 25-32.) Once it is determined that the first station desires access to the shared resource and the shared resource first becomes available, the first station refrains from contending for access to said shared resource for at least an interval substantially equal to the first average backoff interval. (*See, e.g.,* Figure 4; paragraphs [0014], [0031], [0040], and [0047]; page 3, lines 10-14, page 5, lines 4-10, page 6, lines 29-30, and page 8, lines 8-14.)

In accordance with a second embodiment, as described in independent claim 8 of the present application, a method for accessing a shared resource is disclosed. (*See, e.g.,* Figures 2-4; paragraphs [0010], and [0029]-[0033]; page 2, lines 27-31, and page 4, line 29-page 5, line 17.) The method comprises a first station that shares a resource with a plurality of other stations. (*See, e.g.,* Figures 2-4; paragraphs [0014], [0023], and [0030]; page 3, lines 10-11, page 4, lines 7-12, and page 5, lines 1-3.) The first station determines a first average backoff interval by

measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource. (*See, e.g.,* Figure 5; paragraphs [0011], [0031]-[0033]and [0045]; page 2, line 32-page 3, line 3, page 5, lines 4-17 and page 7, lines 25-32.) Once it is determined that the first station desires access to the shared resource and the shared resource first becomes available, the first station refrains from contending for access to said shared resource for at least an interval substantially equal to the first average backoff interval. (*See, e.g.,* Figure 4; paragraphs [0014], [0031], [0040], and [0047]; page 3, lines 10-14, page 5, lines 4-10, page 6, lines 29-30, and page 8, lines 8-14.) Additionally, and after the first average backoff interval is determined, the first station powers down a receiver circuit for at least a portion of said first average backoff interval while the first station is refraining from contending for access to the shared resource. (*See, e.g.,* Figure 4; paragraphs [0013], [0039], and [0046]; page 3, lines 7-9, page 6, lines 26-28, and page 7, line 33-page 8, line 7.)

In accordance with a third embodiment, as described in independent claim 13 of the present application, an apparatus is disclosed. (*See, e.g.,* Figures 2 and 3; paragraph [0045]; page 7, lines 25-32.) The apparatus comprises a transmitter for transmitting data over a shared resource. (*See, e.g.,* Figures 2-4; paragraphs [0023]-[0024], and [0028]; page 4, lines 7-17, and lines 26-28.) The apparatus further comprises a processor configured to determine a first average backoff interval by measuring an average wait time that the transmitter incurred during a plurality of previous attempts to access the shared resource. (*See, e.g.,* Figures 3-5; paragraphs [0011], [0024], [0026], [0031]-[0033], and [0045]; page 2, line 32-page 3, line 3, page 4, lines 13-17, lines 21-23, page 5, lines 4-17 and page 7, lines 25-32.) Once it is determined that the apparatus

desires access to the shared resource and the shared resource first becomes available, the processor is further configured to cause the apparatus to refrain from contending for access to said shared resource for at least an interval substantially equal to the first average backoff interval. (*See, e.g.,* Figures 3 and 4; paragraphs [0014], [0026], [0031], [0040], and [0047]; page 3, lines 10-14, page 4, lines 21-23, page 5, lines 4-10, page 6, lines 29-30, and page 8, lines 8-14.)

In accordance with a fourth embodiment, as described in independent claim 18 of the present application, a system is disclosed. (*See, e.g.,* Figure 2; paragraph [0021]; page 3, line 31-page 4, line 2.) The system comprises a station and an access point communicating over a shared resource. (*See, e.g.,* Figures 2-4; paragraph [0022]-[0023]; page 4, lines 3-12.) The access point is configured to determine a first average backoff interval value by measuring an average wait time that the access point incurred during a plurality of previous attempts to access the shared resource. (*See, e.g.,* Figure 5; paragraphs [0011], [0031]-[0033]and [0045]; page 2, line 32-page 3, line 3, page 5, lines 4-17 and page 7, lines 25-32.) The access point is further configured to distribute the first average backoff interval value to the station. (*See, e.g.,* paragraph [0045]; page 7, lines 25-32.) The station is configured to transmit data over said shared resource. (*See, e.g.,* Figures 2-4; paragraph [0023]; page 4, lines 7-12.) The station is further configured to receive the first average backoff interval value from said access point. (*See, e.g.,* paragraph [0045]; page 7, lines 25-32.) Once it is determined that the station desires access to the shared resource and the shared resource first becomes available, the station refrains from contending for access to said shared resource for at least a first interval substantially equal to said

first average backoff interval value. (*See, e.g.,* Figures 3 and 4; paragraphs [0014], [0026], [0031], [0040], and [0047]; page 3, lines 10-14, page 4, lines 21-23, page 5, lines 4-10, page 6, lines 29-30, and page 8, lines 8-14.) Additionally, the station is configured to power down a receiver circuit for at least a portion of said first interval while the station refrains from accessing the shared resource. (*See, e.g.,* Figure 4; paragraphs [0013], [0039], and [0046]; page 3, lines 7-9, page 6, lines 26-28, and page 7, line 33-page 8, line 7.)

In accordance with a fifth embodiment, as described in independent claim 22 of the present application, an apparatus is disclosed. (*See, e.g.,* Figures 2 and 3; paragraph [0045]; page 7, lines 25-32.) The apparatus comprises a means for transmitting data over a shared resource. (*See, e.g.,* Figures 2-4; paragraphs [0023]-[0024], and [0028]; page 4, lines 7-17, and lines 26-28.) The apparatus further comprises a means for determining a first average backoff interval by measuring an average wait time that the means for transmitting incurred during a plurality of previous access attempts. (*See, e.g.,* Figures 3-5; paragraphs [0011], [0024], [0026], [0031]-[0033], and [0045]; page 2, line 32-page 3, line 3, page 4, lines 13-17, lines 21-23, page 5, lines 4-17 and page 7, lines 25-32.) Additionally, the apparatus comprises yet another means for determining that the apparatus desires access to the shared resource and that the shared resource has first become available, and for causing the apparatus to refrain from contending for access to said shared resource for at least an interval substantially equal to the first average backoff interval. (*See, e.g.,* Figures 3 and 4; paragraphs [0014], [0026], [0031], [0040], and [0047]; page 3, lines 10-14, page 4, lines 21-23, page 5, lines 4-10, page 6, lines 29-30, and page 8, lines 8-14.)

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The first ground of rejection to be reviewed on appeal is the Examiner's rejection of claims 1, 2, 4-7, 13, 17, 22, 25, 28, 30, and 32 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent Publication No. 2002/0163929 (Li et al.) and "IEEE 802.11 Protocol: Design and Performance Evaluation of an Adaptive Backoff Mechanism" (Cali et al.)

The second ground of rejection to be reviewed on appeal is the Examiner's rejection of claims 3, 8-12, 14, 18, 21, 23, 26, 27, 29, and 31 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li et al., Cali et al., and further in view of "PAMAS – Power Aware Multi-Access Protocol with Signaling for Ad Hoc Networks" (Singh et al.)

ARGUMENT

Discussion of Rejections under 35 U.S.C. § 103(a):

Requirements for a *prima facie* case of obviousness

In *In re Rijckaert*, 9 F.3d 1531, 1532, (Fed. Cir. 1993), the Federal Circuit outlined the burden on the PTO as follows with regard to rejections made under 35 U.S.C. § 103:

> In rejecting claims under 35 U.S.C. 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992). Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant. *Id.* "A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell* , 991 F.2d 781, 782, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (CCPA 1976)). If the examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

In order to make a *prima facie* case of obviousness, the Examiner must demonstrate that the prior art (i) teaches or suggests every claim limitation, (ii) provides a motivation to combine (or modify) the teachings of the selected references, and (iii) provides a reasonable expectation of success. *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438 (CAFC 1991); MPEP § 2143. This is the "TSM" test for obviousness which was recently affirmed by the Supreme Court. *KSR Int'l Co. v. Teleflex Inc.*, No. 04-1350, 550 U.S. 398 (2007), slip op. at 15 (2007). In explicating the correct standard for this test, the *KSR* Court reaffirmed previous holdings that an invention "is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, slip op. at 14.; see also, *In re*

Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998). Furthermore, the Court warned the fact-finder to be aware of the distortion caused by hindsight bias and to be cautious of arguments reliant upon *ex post* reasoning. *KSR*, slip op. at 17.

Representative claim

Claim 1 recites:

> A method for accessing a shared resource comprising:
>
> a first station sharing a resource with a plurality of other stations;
>
> the first station determining a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource; and
>
> once it is determined that the first station desires access to the shared resource and the shared resource first becomes available, the first station refraining from contending for access to said shared resource for at least an interval substantially equal to the first average backoff interval.

I. The Examiner has not established a prima facie case of obviousness with regard to claims 1, 2, 4-7, 13, 17, 22, 25, 28, 30, and 32 of the present application in view of the cited prior art references because Li et al. and Cali et al., either separately or in combination with each other, fail to teach or suggest: "determining a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource;" and "refraining from contending for access to the shared resource for at least an interval substantially equal to the first average backoff interval."

With regard to independent claims 1, 13, and 22 of the present application, the Examiner asserted that Li et al. teaches each and every feature recited in these claims including: "determining a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource;" and "refraining from contending for access to the shared resource for at least an internal substantially

equal to the first average backoff interval." Appellant respectfully disagrees with the Examiner's position and submits that for at least the reasons set forth below, the Examiner's rejection is improper and should be reversed.

As discussed at length in Appellant's Amendment and Reply of June 8, 2010, Li et al. is directed to methods and systems "for data collision resolution wherein the same back-off window is sent to a plurality of remote users and is recalculated to maintain a constant collision rate and thereby increase throughput."[1] (*See, e.g.,* Abstract of Li et al.) Li et al. further describes that "throughput is the amount of data transferred from one user to another user in a specified amount of time. In contention resolution algorithms, throughput is often measured as a ratio of the number of successful transmissions to the total number of transmission opportunities." (*See, e.g.,* paragraph [0007] of Li et al.)

To support his position, the Examiner asserted that paragraphs [0014]-[0016], [0059]-[0064], and Figure 5 of Li et al. teach "determining a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource," as required by independent claims 1, 13, and 22 of the present application. Paragraphs [0014]-[0016] recite the following:

> [0014] A system and method for data collision resolution wherein the same back-off window is sent to a plurality of remote users and is dynamically adjusted to maintain a collision rate and thereby enable improved throughput. In accordance with one embodiment, collision rate is estimated by detecting collisions in reservation

[1] It should be noted that in the Final Office Action mailed August 27, 2010, the Examiner indicates that the assertions and remarks set forth therein are in response to Appellant's arguments filed July 12, 2010. Appellant submits that the relevant arguments (and amendments) were dated June 8, 2010. The July 12, 2010 date referenced by the Examiner merely refers to certain communications made with regard to a change in the Power of Attorney for the present application.

slots and the size of the back-off window is adjusted to maintain a collision rate of approximately 1-2/e.

[0015] In accordance with an embodiment of the present invention, a method is disclosed wherein a first back-off window is sent to all users of a network, a second back-off window is calculated based on one or more operational characteristics of the network and the second back-off window is then sent to the users. An embodiment of the present invention further discloses a method of calculating the back-off window based on the collision rate of the system, and, in another embodiment, the back-off window is adjusted to maintain a constant collision rate of approximately 1-2/e. In still another embodiment of the present invention, the status of one or more reservation slots is used to estimate the collision rate of the system.

[0016] In accordance with another embodiment of the present invention, a method for collision resolution is disclosed wherein a common back-off window is sent to all users of a network and the back-off window is dynamically adjusted to maximize throughput. Another embodiment discloses dynamically adjusting the back-off window based on collision rate and, in another embodiment, the back-off window is adjusted to maintain a constant collision rate of approximately 1-2/e. In yet another embodiment, the back-off window size is adjusted to keep the number of users on the system approximately equal to the back-off window.

Figure 5 of Li et al. and its corresponding description at paragraphs [0059]-[0064] recite the following:

[0059] When the reservation slot arrives, the reservation slot counter is incremented by one (Step 108) and a determination is made whether a collision occurred in the reservation slot. Multiple methods to detect collisions are known by those with ordinary skill in the art and an exhaustive review of those methods is beyond the scope of this document. In essence, if the access point 12 receives garbled data or data otherwise in error, FCR assumes a packet collision has occurred and increments the collision counter by one (Step 112).

[0060] The access point 12 does not broadcast a new back-off

window until a sufficient number of reservation slots have been received to estimate the slot collision rate. In this embodiment, the history length of reservation is four; therefore, if the reservation counter has not reached four (Step 116), FCR returns to step 106 and waits for the next reservation slot to arrive. An exception to this rule occurs when the back-off window size is less than the history length of reservation (Step 114). In this embodiment, if the back-off window is less than four and the reservation counter is less than the back-off window, FCR returns to step 106 and waits for the next reservation (Step 118). When, however, the back-off window is less than four (Step 114) and the reservation counter equals the back-off window (Step 118), FCR estimates the slot collision rate, calculates a new back-off window (Step 120) and the access point 12 broadcasts the new back-off window.

[0061] FIG. 5 is a flow diagram that shows an illustrative method of the operation of FCR estimating the slot collision rate and using that estimate to calculate a new back-off window in accordance with an embodiment of the present invention. As already explained, the estimate and back-off window calculation (Step 130) occur when either: a) the reservation counter reaches the history length of reservation, or b) the back-off window is less than the history length of reservation and the reservation counter equals the back-off window.

[0062] In Step 132, FCR checks the size of the back-off window. A back-off window of one means that the access point 12 has received only one reservation slot since the last back-off window was broadcast. In Step 134, FCR checks the collision counter to see if a collision occurred in the single reservation slot that was received. If there was no collision, FCR proceeds to Step 200 and the access point 12 broadcasts the same back-off window (size one) to the wireless devices 14. If, on the other hand, there was a collision (collision counter equals two), FCR increases the back-off window to two (Step 136) and the access point 12 broadcasts the larger back-off window (Step 200).

[0063] If the back-off window is greater than one but less than four (Step 138), FCR proceeds to Step 140. At Step 140, the reservation slot counter has a value of either two or three and FCR checks the collision counter to determine how many collisions occurred in these slots. If zero collisions occurred, the back-off window is set

> to one (Step 142) and is broadcast (Step 200). If one collision occurred (Step 144), the back-off window is not changed and is re-broadcast (Step 200). Finally, if more than one collision occurred, the back-off window is set to four (Step 146) and is broadcast (Step 200).
>
> [0064] In this embodiment, FCR reaches Step 148 when the size of the back-off window is greater than or equal to four (the history length of reservation). This means that four reservation slots have occurred since the last back-off window was broadcast. In Step 148, FCR checks the collision counter to determine how many collisions have occurred. If there have been no collisions, FCR decrements the size of the back-off window by 1 (Step 150) and broadcasts the smaller back-off window (Step 200). If a single collision occurred (Step 152), the back-off window is not changed and is re-broadcast (Step 200). Finally, if more than one collision occurred, the back-off window is incremented by 1 (Step 154) and is broadcast (Step 200).

First and as previously discussed in Appellant's June 8, 2010 Amendment and Reply, nothing in these sections of Li et al., nor anywhere else in Li et al., teaches or even remotely suggests "determining a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource," as required in independent claims 1, 13, and 22 of the present application. As is clear from the above-noted sections of Li et al., the back-off window of Li et al. is calculated, for example, "based on the collision rate of the system, and, in another embodiment, the back-off window is adjusted to maintain a constant collision rate of approximately 1-2/e." (emphasis added). (*See, e.g.,* paragraph [0014] of Li et al.)

Moreover, the Examiner interpreted, and appears to continue to interpret the disclosure of Li et al. in the manner set forth at page 3 of the Final Office Action of November 10, 2009. That is and in the Examiner's opinion:

> A broadest reasonable interpretation of the claim term "average wait time" would include a measurement of network, throughput, as the successful transmission ration of the network would determine the amount of time that a station would have to wait for successful access.

In contrast to the Examiner's interpretation, paragraph [0007] of Li et al. is clear that "throughput is the amount of data transferred from one user to another user in a specified amount of time. In contention resolution algorithms, throughput is often measured as a ratio of the number of successful transmissions to the total number of transmission opportunities." Therefore, Appellant submits that Li et al. fails to teach "determining a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource," as required in independent claims 1, 13, and 22 of the present application. Further still, Appellant submits that the Examiner's "broad interpretation" is simply not supported by the teachings of Li et al.

Second, Appellant notes that the Examiner has continued to interpret the calculation of a "backoff window" as set forth in Li et al. as reading on the currently claimed "average backoff interval." However, as noted during the Examiner Interview conducted on May 5, 2010, the backoff window of Li et al. merely sets a range in which a station may randomly choose a backoff interval. For example, the operation of the backoff window is defined in paragraph [0011] of Li et al. as an interval in which, "if the transmitting user detects a collision, it re-transmits k slots later, where k is a random integer number uniformly distributed over the interval [1, 2.sup.i]. The interval over which the uniformly distributed number is drawn is hereafter referred to as the back-off window." (emphasis added).

In contrast, and as set forth in each of independent claims 1, 13, and 22 of the present application, the currently claimed average backoff interval relates to an interval during which the station "refrains from contending for access to the shared resource." (emphasis added). The two terms (backoff window and backoff interval) are directed to distinct medium access attributes and are not interchangeable in the manner that the Examiner has asserted. Because Li et al. explicitly teaches re-transmitting during the back-off window, Appellant submits that Li et al. simply cannot be interpreted in any way to read on at least this feature of the independent claims of the present application. In fact, Appellant submits that Li et al. teaches away from independent claims 1, 13, and 22 of the present application for at least this reason.

As indicated above, the Examiner asserted that Li et al. teaches each and every feature recited in the independent claims 1, 13, and 22 of the present application. (*See, e.g.*, paragraph 6, pages 5-6 of the August 27, 2010 Final Office Action.) Yet, as noted in paragraph 5, page 5 of the August 27, 2010 Final Office Action, the rejection of independent claims 1, 13, and 22 is reliant upon the combination of Li et al. and Cali et al. That is, and at page 6 of the August 27, 2010 Final Office Action, and despite the Examiner's assertions that Li et al. teaches each and every feature of independent claims 1, 13, and 22, the Examiner also admitted (correctly) that "Li is silent as to measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource." However, the Examiner asserted that Cali et al. cures this deficiency of Li et al.

First, Appellant submits that the Examiner has presented a contradictory position in that at, e.g., page 5 of the August 27, 2010 Final Office Action, the Examiner asserted (as

discussed above), that Li et al. teaches "determining a first backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource." Yet, at page 6 of the outstanding Office Action (as also noted above), the Examiner contradictorily indicated that "Li is silent as to measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource." Therefore, Appellant submits that the Examiner's rejection of independent claims 1, 13, and 22 of the present application is improper.

Second and notwithstanding the Examiner's contradictions, Appellant submits that Cali et al. fails to teach or suggest "measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource." That is, and as set forth on, e.g., page 1778, right paragraph, lines 17-19, Cali et al. teaches a station monitoring a wireless medium and calculating a moving average window of "average idle period length" and "average collision cost." However, neither of these values corresponds to an "average wait time that the first station incurred during a plurality of previous access attempts to the shared resource."

Moreover, Appellant submits that the alleged combination of Li et al. and Cali et al. (even if for the sake of argument, Cali et al. could be interpreted as teaching some average wait time measurement), still would not arrive at the claimed embodiments disclosed in independent claims 1, 13, and 22 of the present application. That is, and in accordance with the Examiner's reasoning, Cali et al. would merely "provide the average backoff interval calculation of Cali in the system of Li..." However, and as already discussed above, providing a backoff

interval with which to modify the systems and methods disclosed in Li et al., would merely result in Li et al. re-transmitting/transmitting during a backoff window, where the backoff window happens to be calculated in the manner suggested by Cali et al. Thus, Appellant submits that the alleged combination of Li et al. and Cali et al. would still fail to teach or suggest "refraining from contending for access to the shared resource for at least an internal substantially equal to the first average backoff interval."

Further still and as discussed in Appellant's Pre-Appeal Brief Request for Review dated October 19, 2010, Appellant submits that the August 27, 2010 Final Office Action is in clear and direct violation of Section 707.07(f) of the Manual of Patent Examining Procedure (MPEP).

The August 27, 2010 Final Office Action maintained the rejection of claims 1, 2, 4-7, 13, 17, 22, 25, 28, 30, and 32 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li et al. and Cali et al. In maintaining this rejection, the Examiner repeated, verbatim, the reasons of rejection presented in the March 16, 2010 Non-final Office Action. (*See,* pages 3-6 of the March 16, 2010 Non-final Office Action and pages 5-8 of the August 27, 2010 Final Office Action.)

Additionally, and in response to Appellant's arguments presented in Appellant's June 8, 2010 Amendment and Reply, the Examiner presented certain other assertions at paragraph 3, pages 2-4 of the August 27, 2010 Final Office Action. Specifically, the Examiner presented a "response" (A) to Appellant's arguments that neither Li et al. nor Cali et al. teach "determining a first average backoff interval by measuring an average wait time that the first

station incurred during a plurality of previous access attempts to the shared resource;" and "refraining from contending for access to the shared resource for at least an internal substantially equal to the first average backoff interval."

However, the Examiner's response at pages 2-3 of the August 27, 2010 Final Office Action (which purportedly "addresses" Appellant's arguments) is merely a near-verbatim parroting of the reasons of rejection previously presented in the March 16, 2010 Non-final Office Action, and as indicated above, repeated in the August 27, 2010 Final Office Action. (*See,* pages 3-4 of the March 16, 2010 Non-final Office Action and pages 5-6 of the outstanding Final Office Action.) That is, the only "new" assertion made by the Examiner is the statement at page 3 of the August 27, 2010 Office Action that "[t]he backoff value is adjusted based on incurred average wait time that the stations incur... to prevent further congestion." Yet, Appellant submits that this statement is merely an attempt at paraphrasing the relevant limitation in, e.g., independent claim 1 of the present application. Although the Examiner indicated that this assertion was supported by paragraphs [0014]-[0016] and [0059]-[0064] of Li et al., as already argued by Appellant in the June 8, 2010 Amendment and Reply, support for the Examiner's assertions cannot be found in these or other sections of Li et al. (*See,* pages 11-13 of Appellant's June 8, 2010 Amendment and Reply.)

Further still and at page 3 of the August 27, 2010 Final Office Action, the Examiner's response contains another verbatim repetition of the Examiner's alleged "broadest reasonable interpretation of the claim term 'average wait time.'" (*See, e.g.,* page 3 of the Final Office Action dated November 10, 2009, and quoted and rebutted at page 14 of Appellant's July

12, 2010 Amendment and Reply.) Moreover, the Examiner asserted that Appellant's arguments that the claimed "average wait time" limitation is, e.g., more specific, excludes collision counts, etc. are not supported by the actual claim language. This is another verbatim repetition of the Examiner's arguments presented at page 3 of the November 10, 2009 Final Office Action.

Additionally still, at page 3 of the August 27, 2010 Final Office Action, the Examiner's "response" is yet again, essentially a mere repetition of the reasons of rejection already presented at, e.g., page 4 of the March 16, 2010 Non-final Office Action and page 6 of the same, August 27, 2010 Final Office Action. The only "new" assertion presented by the Examiner is that allegedly, "Li instead draws on a broader range of average wait times in calculating a first average backoff interval." However, neither the repeated assertions nor this "new" statement rebuts or addresses any of Appellant's arguments at page 15 of Appellant's June 8, 2010 Amendment and Reply calling out the Examiner's contradictory position and the deficiencies of Cali et al.

In light of the above, Appellant submits that the outstanding Final Office Action is in clear and direct violation of Section 707.07(f) of the MPEP which states that "[w]here the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it." (emphasis added). In this instance, and as discussed above, the Examiner merely presented assertions that essentially parroted the Examiner's previously presented arguments/rejections in either the November 10, 2009 Final Office Action, the March 16, 2010 Non-final Office Action, and/or the August 27, 2010 Final Office Action without substantially answering or rebutting any of Appellant's arguments, or

providing further support for the Examiner's alleged positions/interpretations. Therefore, Appellant submits that the August 27, 2010 Final Office Action is improper with respect to claims 1, 2, 4-7, 13, 17, 22, 25, 28, 30, and 32 of the present application in that it is unresponsive to any of Appellant's arguments and in violation of Section 707.07(f) of the MPEP.

At page 4 of the August 27, 2010 Final Office Action, the Examiner presented another "response" (B) to Appellant's arguments set forth in Appellant's June 8, 2010 Amendment and Reply. Specifically, the Examiner indicated that his assertions were meant to address Appellant's argument that "[t]he prior art of Li and Cali are not obvious to combine, as the references teach away from any reasonable combination."

First, and like the Examiner's previous responses discussed above, response (B) merely repeats the Examiner's reasons for rejection at, e.g., pages 4-5 of the March 16, 2010 Non-final Office Action and pages 6-7 of the August 27, 2010 Final Office Action.

Second, Appellant submits that the arguments presented in Appellant's June 8, 2010 Amendment and Reply regarding the alleged combination of Li et al. and Cali et al., were not directed to either reference "teaching away" from the other. Rather, and as clearly indicated at pages 15-16 of Appellant's June 8, 2010 Amendment and Reply (and discussed above), even if the teachings of Li et al. and Cali et al. "could" be combined, the resulting combination would not arrive at the claimed embodiments disclosed in independent claims 1, 13, and 22 of the present application.

Hence, Appellant again submits that the August 27, 2010 Final Office Action is improper in that it is unresponsive to any of Appellant's arguments and in violation of Section 707.07(f) of the MPEP.

In light of the above, Appellant submits that the Examiner has not established a *prima facie* case of obviousness, and therefore respectfully requests that the Examiner's rejection of independent claims 1, 13, and 22 of the present application be reversed.

Because claims 2, 4-7, 17, 25, 28, 30, and 32 of the present application are each dependent upon independent claims 1, 13, or 22 of the present application, Appellant further submits that the alleged combination of Li et al. and Cali et al. fail to teach each and every feature recited therein for at least the same reasons as already discussed above. Therefore and again, Appellant submits that the Examiner has not established a *prima facie* case of obviousness, and therefore respectfully requests that the Examiner's rejection of independent claims 2, 4-7, 17, 25, 28, and 30 of the present application be reversed.

II. The Examiner has not established a prima facie case of obviousness with regard to claims 3, 8-12, 14, 18, 21, 23, 26, 27, 29, and 31 of the present application in view of the cited prior art references because Singh et al. cannot cure the deficiencies of Li et al., Cali et al.

In the August 27, 2010 Final Office Action, claims 3, 8-12, 14, 18, 21, 23, 26, 27, 29, and 31 of the present application were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li et al., Cali et al., and further in view of "PAMAS – Power Aware Multi-Access Protocol with Signaling for Ad Hoc Networks" (Singh et al.) Appellant respectfully disagrees with the Examiner's position and submits that for at least the reasons set forth below, the Examiner's rejection is improper and should be reversed.

As set forth on pages 9-14 of the August 27, 2010 Final Office Action, the Examiner exclusively relied upon Li et al. and Cali et al. to allegedly establish a *prima facie* case of obviousness with respect to their respective base (independent) claims. For at least the same reasons as noted above, Appellant submits that Li et al. and Cali et al. fail to support a *prima facie* case of obviousness with regard to claims 3, 8-12, 14, 18, 21, 23, 26, 27, 29, and 31 of the present application.[2]

Furthermore, Appellant submits that it is improper to combine Singh et al. with Li et al. and Cali et al. for at least the reason that these references teach away from any reasonable combination.

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Furthermore, an obviousness rejection is improper if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

In this instance, Li et al. and Cali et al. teach methods and systems that require a receiver to stay powered on in order to monitor the wireless medium and calculate/update an optimum backoff window. Accordingly, modifying Li et al. and Cali et al. in the manner asserted by the Examiner in view of Singh et al. (i.e., powering down the receiver when there are

[2] It should be noted that claims 8 and 18 of the present application are independent claims reciting substantially similar limitations as those recited in, e.g., dependent claim 3 which includes the limitations recited in, e.g., independent claim 1 of the present application.

no frames to transmit) would render the alleged combination of Li et al. and Cali et al. unable to monitor the medium and modify the backoff window to optimize the efficiency of the protocol. Hence, Appellant submits that modifying Li et al. and Cali et al. in the manner asserted by the Examiner would, for the reasons enumerated above, result in the alleged combination of Li et al. and Cali et al. being modified unsatisfactorily for their intended purpose.

Further still, Appellant respectfully disagrees with the Examiner's characterization of Singh et al. as disclosing "IEEE 802.11 nodes [] power down when prevented from accessing the resource" set forth on page 9 of the August 27, 2010 Final Office Action. As set forth in Section 2.1 of Singh et al., "nodes transmit their requests to the base station during specific reservation intervals and the base station transmits a TIM (Traffic Indication map) that includes the transmission schedule for the nodes. All nodes not participating in transmission or reception of packets go into doze mode until the next reservation period." Accordingly, if a node has no pending data to send to the base station (i.e., no reservation request is sent to the base station and thus the node is not participating in transmission of packets), and the base station has no pending data to send to the node (as indicated by the TIM), the node may go to sleep until the next reservation period. Such a disclosure is not equivalent to powering down a node during a backoff interval during which the station "refrain[s] from contending for access to the shared resource" as required in the claims of the present application.

For at least these reasons as well, Appellant submits that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), and that the Examiner's rejections of claims 3, 8-12, 14, 18, 21, 23, and 26-27 should be reversed.

Additionally, and as discussed in Appellant's Pre-Appeal Brief Request for Review dated October 19, 2010, Appellant submits that the August 27, 2010 Final Office Action is yet again, in clear and direct violation of Section 707.07(f) of the Manual of Patent Examining Procedure (MPEP).

In the August 27, 2010 Final Office Action, the rejection of claims 3, 8-12, 14, 18, 21, 23, 26, 27, 29, and 31 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li et al., Cali et al., and further in view of Singh et al. was also maintained. In maintaining this rejection, the Examiner repeated, verbatim, the reasons of rejection presented in the March 16, 2010 Non-final Office Action. (*See,* pages 6-12 of the March 16, 2010 Non-final Office Action and pages 9-14 of the August 27, 2010 Final Office Action.)

Although Appellant presented detailed arguments at pages 16-18 of Appellant's July 12, 2010 Amendment and Reply directed to rebutting the above rejection, the Examiner offered no response. Instead, the Examiner merely repeated his previously asserted reasons for rejection. Therefore, Appellant submits that the August 27, 2010 Final Office Action is again, in clear and direct violation of Section 707.07(f) of the MPEP which states that "[w]here the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it." (emphasis added). In this instance, and as discussed above, the Examiner merely parroted his previously presented arguments in both the March 16, 2010 Non-final Office Action, and the August 27, 2010 Final Office Action without substantially answering or rebutting any of Appellant's arguments, or provide further support for the Examiner's alleged positions/interpretations. Therefore, Appellant submits that

the August 27, 2010 Final Office Action is improper with respect to claims 3, 8-12, 14, 18, 21, 23, 26, 27, 29, and 31 in that it is unresponsive to any of Appellant's arguments and in violation of Section 707.07(f) of the MPEP.

For at least these reasons as well, Appellant submits that the Examiner has failed to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), and that the Examiner's rejection of claims 3, 8-12, 14, 18, 21, 23, and 26-27 should be reversed.

Respectfully submitted,

Date January 21, 2011

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CLAIMS APPENDIX

1. (Previously Amended, Rejected) A method for accessing a shared resource comprising:

a first station sharing a resource with a plurality of other stations;

the first station determining a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource; and

once it is determined that the first station desires access to the shared resource and the shared resource first becomes available, the first station refraining from contending for access to said shared resource for at least an interval substantially equal to the first average backoff interval.

2. (Previously Amended, Rejected) The method of claim 1, further comprising the first station transmitting a frame to one of the other stations using the shared resource after said first average backoff interval has passed, wherein said shared resource is a shared-communications channel.

3. (Previously Amended, Rejected) The method of claim 1, further comprising, after the first average backoff interval is determined, the first station powering down a receiver circuit for at least a portion of said first average backoff interval while the first station is refraining from contending for access to the shared resource.

4. (Previously Amended, Rejected) The method of claim 1, wherein said first average backoff interval is further based on a moving average.

5. (Previously Amended, Rejected) The method of claim 1, further comprising the first station refraining from contending for access to the shared resource for a second random backoff interval beyond said first average backoff interval.

6. (Previously Amended, Rejected) The method of claim 5, wherein said second random backoff interval assumes a nonzero value only after an unsuccessful attempt to transmit occurs.

7. (Previously Presented, Rejected) The method of claim 1, wherein said backoff interval is constrained to be at least as long as an 802.11 distributed interframe space.

8. (Previously Amended, Rejected) A method for accessing a shared resource comprising:

a first station sharing a resource with a plurality of other stations;

the first station determining a first average backoff interval by measuring an average wait time that the first station incurred during a plurality of previous access attempts to the shared resource;

once it is determined that the first station desires access to the shared resource and the shared resource first becomes available, the first station refraining from contending for access to said shared resource for at least an interval substantially equal to said first average backoff interval; and

after the first average backoff interval is determined, the first station powering down a receiver circuit for at least a portion of said first average backoff interval while the first station is refraining from contending for access to the shared resource.

9. (Previously Amended, Rejected) The method of claim 8, further comprising the first station transmitting a frame to one of the other stations using the shared resource after said first average backoff interval has passed, wherein said shared resource is a shared-communications channel.

10. (Previously Amended, Rejected) The method of claim 8, wherein said first average backoff interval is further based on a moving average.

11. (Previously Amended, Rejected) The method of claim 8, further comprising the first station refraining from contending for access to the shared resource for a second random backoff interval beyond said first average backoff interval.

12. (Previously Amended, Rejected) The method of claim 11, wherein said second random backoff interval assumes a nonzero value only after an unsuccessful attempt to transmit occurs.

13. (Previously Amended, Rejected) An apparatus comprising:

a transmitter for transmitting data over a shared resource; and

a processor configured to determine a first average backoff interval by measuring an average wait time that the transmitter incurred during a plurality of previous attempts to access the shared resource and, once it is determined that the apparatus desires access to the shared resource and the shared resource first becomes available, to cause the apparatus to refrain from contending for access to said shared resource for at least an interval substantially equal to the first average backoff interval.

14. (Previously Amended, Rejected) The apparatus of claim 13, further comprising a receiver for receiving data from the shared resource;

wherein the processor is configured to power down the receiver for at least a portion of said first average backoff interval while the apparatus is refraining from contending for access to the shared resource.

15.-16. (Canceled)

17. (Previously Presented, Rejected) The apparatus of claim 13, wherein said shared resource is a shared-communications channel and wherein said transmitter communicates over the shared-communications channel in accordance with an IEEE 802.11 protocol.

18. (Previously Amended, Rejected) A system comprising:

a station and an access point communicating over a shared resource, the access point configured to:

determine a first average backoff interval value by measuring an average wait time that the access point incurred during a plurality of previous attempts to access the shared resource; and

distribute the first average backoff interval value to the station,

the station configured to:

transmit data over said shared resource;

receive the first average backoff interval value from said access point;

once it is determined that the station desires access to the shared resource and the shared resource first becomes available, refrain from contending for access to said shared resource for at least a first interval substantially equal to said first average backoff interval value; and

power down a receiver circuit for at least a portion of said first interval while the station refrains from accessing the shared resource.

19.-20. (Canceled)

21. (Previously Amended, Rejected) The system of claim 18, wherein the station refrains from contending for access to the shared resource for a second random backoff interval beyond said first average backoff interval.

22. (Previously Amended, Rejected) An apparatus comprising:

a means for transmitting data over a shared resource;

a means for determining a first average backoff interval by measuring an average wait time that the means for transmitting incurred during a plurality of previous access attempts; and

a means for determining that the apparatus desires access to the shared resource and that the shared resource has first become available, and for causing the apparatus to refrain from contending for access to said shared resource for at least an interval substantially equal to the first average backoff interval.

23. (Previously Amended, Rejected) The apparatus of claim 22, further comprising a means for, after the first average backoff interval is determined, powering down a receiving means for at least a portion of said first average backoff interval while the apparatus refrains from contending for access to the shared resource.

24. (Canceled)

25. (Previously Presented, Rejected) The apparatus of claim 22, wherein said shared resource is a shared-communications channel and wherein said means for transmitting transmits over the shared-communications channel in accordance with an 802.11 protocol.

26. (Previously Amended, Rejected) The method of claim 3, further comprising the first station powering down a transmitter circuit for at least the same portion of said first average backoff interval.

27. (Previously Amended, Rejected) The apparatus of claim 14, wherein the processor is configured to power down the transmitter for at least the same portion of said first average backoff interval.

28. (Previously Presented, Rejected) The method of claim 1, wherein the first station measuring an average wait time comprises:

the first station measuring a plurality of wait times, each wait time measured (i) from a time that the first station first determines that the shared resource has become idle (ii) to a time that the first station actually transmits a pending frame on the shared resource; and

calculating an average of the plurality of wait times.

29. (Previously Presented, Rejected) The method of claim 8, wherein the first station measuring an average wait time comprises:

the first station measuring a plurality of wait times, each wait time measured (i) from a time that the first station first determines that the shared resource has become idle (ii) to a time that the first station actually transmits a pending frame on the shared resource; and

calculating an average of the plurality of wait times.

30. (Previously Presented, Rejected) The apparatus of claim 13, wherein measuring an average wait time comprises:

the processor being configured to measure a plurality of wait times, each wait time measured (i) from a time that the processor first determines that the shared resource has become idle (ii) to a time that the transmitter actually transmits a pending frame on the shared resource; and

the processor being configured to calculate an average of the plurality of wait times.

31. (Previously Presented, Rejected) The system of claim 18, wherein measuring an average wait time comprises:

the access point being configured to measure a plurality of wait times, each wait time measured (i) from a time that the access point first determines that the shared resource has

become idle (ii) to a time that the access point actually transmits a pending frame on the shared resource; and

the access point being configured to calculate an average of the plurality of wait times.

32. (Previously Presented, Rejected) The apparatus of claim 22, wherein measuring an average wait time comprises:

the means for determining measuring a plurality of wait times, each wait time measured (i) from a time that the apparatus first determines that the shared resource has become idle (ii) to a time that the apparatus actually transmits a pending frame on the shared resource; and

the means for determining calculating an average of the plurality of wait times.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.